



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,013	12/16/2005	Per Atle Valand	P18272-US1	1230
27045	7590	07/12/2007	EXAMINER	
ERICSSON INC.			LIU, HARRY K	
6300 LEGACY DRIVE			ART UNIT	
M/S EVR 1-C-11			PAPER NUMBER	
PLANO, TX 75024			3662	
			MAIL DATE	DELIVERY MODE
			07/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/595,013

Applicant(s)

VALAND, PER ATLE

Examiner

Harry Liu

Art Unit

3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/16/2005
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 14-16, 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Soliman (6081229).

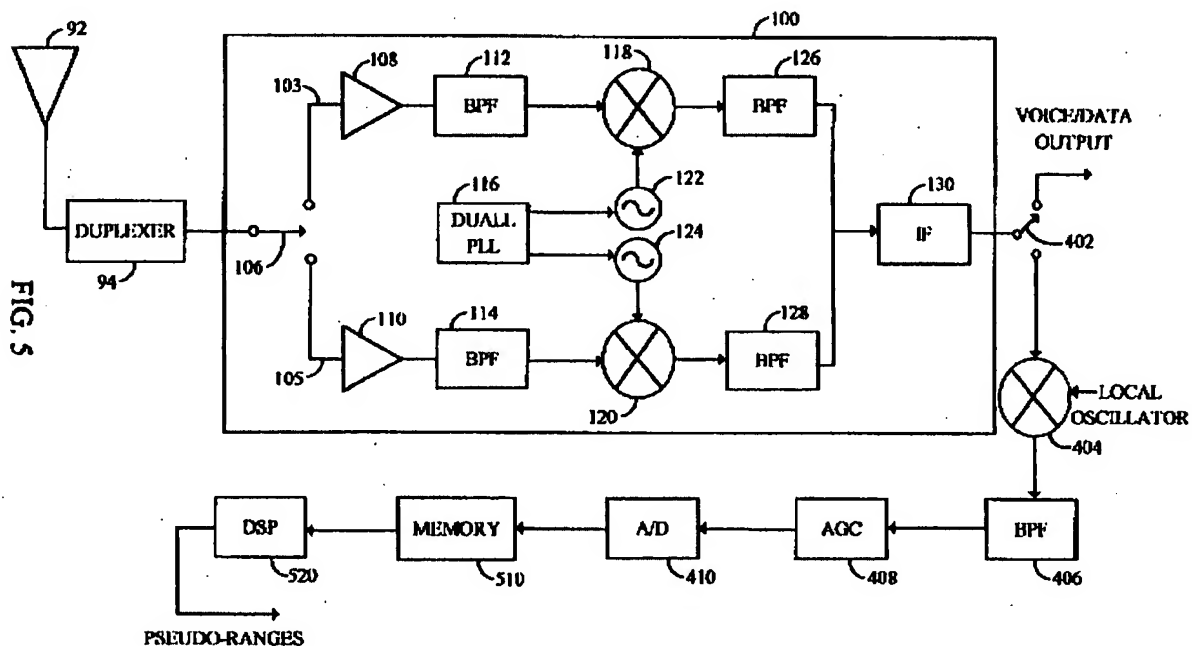
Regarding claims 14, 21, Soliman discloses detecting the presence of a radar emitter (determining position of a wireless transceiver) comprising the steps of:

Receiving radar signal (wireless uplink signal) by a plurality of antennas, each antenna pointing in a different direction and covering a sector of surrounding area (cellular system has multiple antennas/sectors).

Splitting the radar signals received from the antennas into a number of first sub-bands (a cellular sub-band varies from 1.25MHz up to 15MHz depends on spectrum allocated, a GPS receiver also needs to look at subbands in the spectrum).

Converting each of first sub-band channels (a digital receiver module 100 down convert signal to baseband) into baseband channels (the LO404 converts signals to baseband, column 7, lines 54-55). Summing all baseband channels to form a common baseband channel (baseband output from multiple receivers of different subbands will need summing); digitizing signal with A/D (article 410) (see FIG. 5 below).

Processing the digitized signals in order to detect and identify the emitter (transmitter) source (DSP 520 process GPS signal for positioning) (column 7, lines 59-62).



Regarding claim 15, Soliman discloses the steps of converting each first sub-band into an intermediate frequency channel (IF 130). Summing all intermediate frequency channels to form a common baseband channel (baseband output from multiple receivers of different subbands will need summing). Splitting and converting sub-bands into baseband channel.

Regarding claim 16, Soliman discloses the performing of pulse detection on each IF channel prior to summing in order to determine the direction and frequency (cellular and GPS receiver has different receiver and demodulation process).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soliman (6081229).

Regarding claim 17, Soliman discloses transforming received pulse signal into frequency domain (cellular and GPS both have sub-band, dividing into sub-band is a frequency domain). Soliman inherently discloses measuring direction of arrival, time of arrival by using cellular system for positioning a mobile. Measuring pulse width for determining the amount of energy received.

Soliman fails to disclose measuring pulse peak amplitude and average amplitude. However, measuring pulse peak and average is a known way of measuring information energy.

Regarding claim 18, Soliman discloses using cellular/GPS signal to position emitter. Identifying the source of pulses coming from can be done by PN. Performing and classifying analysis on emitter by despreading the PN and finding the signal strength.

Regarding claim 19, Soliman discloses using cellular/GPS signal to position emitter. The emitter analysis includes improving direction of arrival measurements by averaging (averaging and weighting of received signal is inherent in triangulation). It is

Art Unit: 3662

known that beam width of an emitter/transmitter can be measured by comparing pulse amplitude. Amplitude drop of 3dB is a typical threshold of deciding antenna beamwidth.

Regarding claim 20, Soliman discloses using cellular/GPS signal to position emitter. Triangulation is the typical method of using neighboring multiple beacons to help for calculation.

5. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Soliman (6081229), as applied to claim 14 above, and further in view of Young (2004/0072575).

6. Regarding claim 22, Soliman discloses all claim limitations in the rejection of claim 14 except for double downconversion circuitry. However, Young teaches the use of double downconversion (paragraph 0008). It would have been obvious to modify Soliman with Young by using double downconversion in order to process each channel individually by two steps process of downconversion.

7. Claims 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soliman (6081229), in view of Young (2004/0072575), as applied to claim 21 above, and further in view of Carlin (6898235).

8. Regarding claim 23, Soliman modified by Young discloses all claim limitations except for detectors and comparator. However, Carlin teaches use of detector and comparator (column 3, lines 1-20). It would have been obvious to use detectors and comparator in comparing the direction of arrival for each individual channel in order to separately monitoring the signals.

Regarding claim 24, Soliman modified by Young does not specifically disclose controlling amplifier to save power. However, it would have been obvious to control the

Art Unit: 3662

amplifier by control logic to enable/disable (turn on/off) amplifier operation since multiple amplifiers are used..

Regarding claim 25, Soliman modified by Young does not specifically disclose using two separate antennas to receive two range of signal. However, it is a common practice in cellular communication by using two separate sets of antennas for handling two ranges of signals (800MHz/1900MHz). It would have been obvious to modify the system by using separate antennas to handle 2-6 and 6-18 GHz individually.

Regarding claim 26, Soliman modified by Young does not specifically disclose a network connecting the ESM system to a control center with database. However, it is a known technique for positioning with cellular system by connecting to a location server/center. It would have been obvious to connect to location server in order to receive direction and signature info (assisting info); determine the position of a radar emitter by triangulation (server does the triangulation processing) and determine the identity of radar emitter by comparison with emitter signatures stored in database (server typically saves the emitter data).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry Liu whose telephone number is 571-270-1338. The examiner can normally be reached on Monday -Thursday and every other Friday..

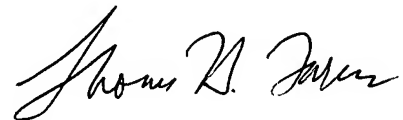
Art Unit: 3662

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-270-2338.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Harry Liu  
Examiner  
Art Unit 3662  
June 29, 2007



THOMAS H. TARCZA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600